

Amendments to the Claims

1. (previously presented) A method of fabricating an optical fiber laser, the method comprising the step of exposing an optical fiber to a transverse writing light beam to form a grating structure in a section of the optical fiber, the writing light beam being polarized in a direction not parallel to the axis of the section of the optical fiber so that the induced grating structure has a different grating strength for two orthogonal polarization modes of the optical fiber, the grating structure comprising a discrete phase shift which is substantially identical for the two orthogonal polarization modes.
2. (previously presented) A method according to claim 1, in which the writing light beam is polarized in a direction substantially perpendicular to the axis of the section of the optical fiber.
3. (previously presented) A method according to claim 1, in which the writing light beam is an ultraviolet beam.
4. (previously presented) A method according to claim 3, in which the ultraviolet beam has a wavelength of about 244 nanometers.
5. (previously presented) A method according to claim 1, in which the optical fiber section is doped with at least one amplifying dopant.
6. (previously presented) A method according to claim 5, in which the optical fiber section is doped with at least one rare earth element.
7. (previously presented) A method according to claim 6, in which the optical fiber section is doped with erbium and ytterbium.
8. (previously presented) A method according to claim 1, wherein the optical fiber laser is stressed to provide substantially single polarization operation.

9. (previously presented) A method according to claim 1, wherein the optical fiber laser is stressed to provide dual polarization operation.
 10. (previously presented) A method according to claim 1, wherein the grating structure is written as a Moire phase shifted structure to provide lasing operation at two wavelengths having one polarization.
 11. (previously presented) A method according to claim 1, wherein the grating structure is written as first and second overlaying DFB grating structures to provide lasing operation at two wavelengths having one polarization.
- 12-26. (cancelled)
27. (previously presented) A method of fabricating an optical fiber laser, the method consisting of the step of exposing an optical fiber to a transverse writing light beam to form a grating structure in a section of the optical fiber, the writing light beam being polarized in a direction not parallel to the axis of the section of the optical fiber so that the induced grating structure has a different grating strength for two orthogonal polarization modes of the optical fiber, the grating structure comprising a discrete phase shift which is substantially identical for the two orthogonal polarization modes.
 28. (previously presented) A method according to claim 1, in which the writing light beam is polarized in a direction substantially perpendicular to the axis of the section of the optical fiber.
 29. (previously presented) A method according to claim 1, in which the writing light beam is an ultraviolet beam.
 30. (previously presented) A method according to claim 29, in which the ultraviolet beam has a wavelength of about 244 nanometers.

31. (previously presented) A method according to claim 1, in which the optical fiber section is doped with at least one amplifying dopant.
32. (previously presented) A method according to claim 31, in which the optical fiber section is doped with at least one rare earth element.
33. (previously presented) A method according to claim 6, in which the optical fiber section is doped with erbium and ytterbium.
34. (previously presented) A method according to claim 1, wherein the optical fiber laser is stressed to provide substantially single polarization operation.
35. (previously presented) A method according to claim 1, wherein the optical fiber laser is stressed to provide dual polarization operation.
36. (previously presented) A method according to claim 1, wherein the grating structure is written as a Moire phase shifted structure to provide lasing operation at two wavelengths having one polarization.
37. (previously presented) A method according to claim 1, wherein the grating structure is written as first and second overlaying DFB grating structures to provide lasing operation at two wavelengths having one polarization.